



**STOCKPILE  
REPORT  
to the  
CONGRESS**

**JANUARY - JUNE 1971**

**EXECUTIVE OFFICE OF THE PRESIDENT  
OFFICE OF EMERGENCY PREPAREDNESS  
WASHINGTON, D. C. 20504**



President Richard M. Nixon has delegated to the Director, Office of Emergency Preparedness, the responsibility for preparing and submitting to the Congress the report on the stockpiling program, as prescribed by the Strategic and Critical Materials Stock Piling Act.

EXECUTIVE OFFICE OF THE PRESIDENT  
OFFICE OF EMERGENCY PREPAREDNESS  
WASHINGTON, D.C. 20504

OFFICE OF THE DIRECTOR

October 27, 1971

Honorable Spiro T. Agnew  
President of the Senate

Honorable Carl Albert  
Speaker of the House of Representatives

Sirs:

Pursuant to Section 4 of the Strategic and Critical Materials Stock Piling Act, Public Law 520, 79th Congress, there is presented herewith the semiannual report to the Congress on the strategic and critical materials stockpiling program for the period January 1 to June 30, 1971.

A statistical supplement to this report was transmitted to you on September 21, 1971.

Sincerely,

  
G. A. Lincoln  
Director



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## INTRODUCTION

Executive Order 11051 delegates to the Director of OEP the authority to determine what materials are strategic and critical, and to set the quantities and qualities of such materials which are to be stockpiled to meet our national security needs.

The Administration has dedicated its stockpile activities to providing a continuing efficient national security management for the materials stockpiled while at the same time seeking to minimize the cost of this security to the taxpayer.

This approach to stockpiling of strategic and critical materials calls for the maintenance of inventories of those quantities and qualities of materials which are deemed necessary for national security. At the same time, material quantities in excess of the amounts essential to our needs represent an undesirable and costly economic burden in a period of tight Government finances. Thus, excess quantities are to be converted to revenue in a manner consistent with existing stockpile legislation safeguards: "*The plan and date of disposition shall be fixed with due regard to the protection of the United States against avoidable loss on the sale or transfer of the material to be released and the protection of producers, processors, and consumers against avoidable disruption of their usual markets.*"

The Administration has proposed to the current Congress 30 disposal bills having a combined potential value in excess of \$1 billion. Of this quantity, 26 (valued at about \$600 million) received approval from the

United States Senate, and 24 (valued at about \$400 million) were nearing final approval in the House of Representatives at the close of the report period. It is the intention of this Administration to continue to work with the Congress to assure an efficient program for stockpile management while reducing the cost of this program.

With the submission of the 30 disposal bills presented to this session of Congress, the Administration has now requested disposal authority for all currently excess stockpile materials, except three materials where market conditions have precluded submission of disposal legislation. Legislation for these three materials will be submitted as soon as market conditions permit.

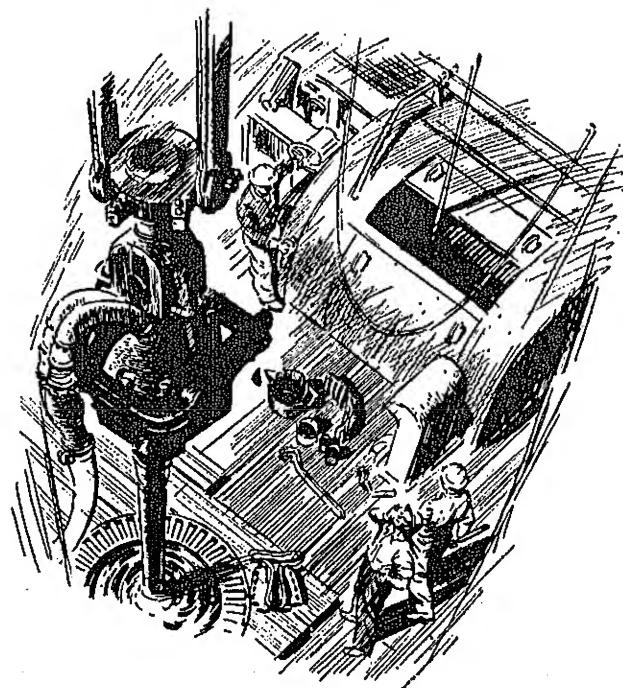
OEP has continued to emphasize development of its automated capability for analyzing supply-requirement positions for materials. This program, established in February 1970, will allow full utilization of the electronic data processing and econometric modeling techniques in the analysis of our national security position for materials. The system consists of projecting Gross National Product (GNP) for estimated periods of national emergency. Using techniques originally developed by the Office of Business Economics, Department of Commerce, these GNP projections are converted to outputs by industry sector for an emergency period. Then, through the use of material consumption coefficients developed by OEP, these industry sector outputs are converted to estimated gross material requirements.

The historical data base used for requirement calculations was initially based upon a five year time span. During the report period, this historical base was extended back to 1950 for approximately 50 materials. Work is continuing on extending the historical base back for all other materials on the stockpile list, as well as certain other materials monitored by OEP. Eventually this system will cover more than 100 materials.

Most work to date has been on requirements projections. However, successful completion of efforts to develop an improved analysis technique for supplies will permit more complete monitoring of the various factors that influence the supply of materials

necessary to national security, including factors involved in calculating our potential dependency on foreign sources of supply in a period of emergency.

Development and refinement of this system will greatly expand OEP's materials policy analysis capability. It will permit regular periodic reviews of the supply-requirement situation for materials to assure that the stockpiles do contain the correct quantities and qualities of materials necessary for national security. In addition, it will allow analysis of the effects of alternative stockpile policies on the national security materials position.

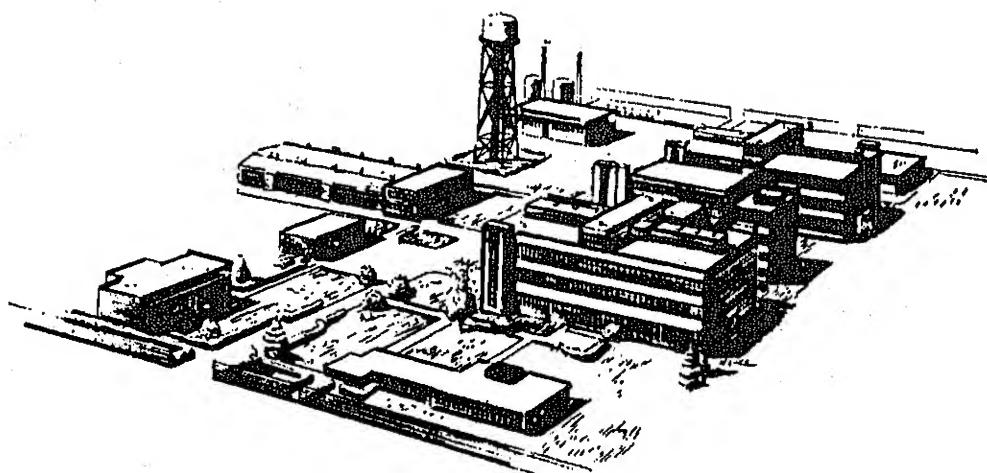


## SUMMARY OF GOVERNMENT INVENTORIES OF STRATEGIC AND CRITICAL MATERIALS

As of June 30, 1971, the estimated market value of strategic materials held in Government inventories amounted to \$6.7 billion, including \$4.2 billion held against objectives, and \$2.5 billion in excess of objectives. Over 82 percent of the value of these excesses was made up of 14 materials: *aluminum, metallurgical grade bauxite (Jamaica), metallurgical grade chromite (upgraded forms and subspecification ores), cobalt, industrial diamond bort and stones, lead, metallurgical grade manganese, molybdenum, nickel, quartz crystals, rubber, tin, tungsten, and zinc.*

The following table is a summary of the

total value of all materials carried in Government inventories, including those with quantities in excess of established stockpile objectives, as of June 30, 1971. It indicates the acquisition cost and estimated current market value of materials meeting stockpile objectives and of those materials which are excess to stockpile needs. The market values shown have not been adjusted for normal premiums and discounts relating to contained qualities, or for inherent materials-handling costs that would be related to movement of the material at disposal. The market values listed do not, therefore, reflect the amount of revenue that would be realized at time of sale.



**SUMMARY OF GOVERNMENT INVENTORIES OF  
STRATEGIC AND CRITICAL MATERIALS**

June 30, 1971

	Acquisition Cost	Market Value*
A. I. Inventories Reserved for Objectives		\$4,155,280,700
II. Uncommitted Excess Inventories		2,533,651,200
Total		\$6,688,931,900
B. I. Total Inventories in Storage		
National Stockpile .....	\$4,171,489,800	\$4,897,356,800
Supplemental Stockpile .....	1,412,635,100	1,522,577,400
Defense Production Act .....	673,817,000	403,672,900
Total on Hand .....	\$6,257,941,900	\$6,823,607,100
II. Inventories Within Objective		
Total .....	\$3,526,390,000	\$4,155,280,700
III. Excess Inventories in Storage		
Total .....	\$2,731,551,900	\$2,668,326,400

\*Market values are computed from prices at which similar materials are being traded; or, in the absence of current trading, at an estimate of the price which would prevail in commercial markets. Market values are unadjusted for normal premiums and discounts relating to contained qualities, or for inherent materials handling allowances. *Market values do not necessarily reflect the amount that would be realized at time of sale.*

The Uncommitted Excess excludes the unshipped sales; the Inventories in Storage include quantities that have been sold but not shipped.

Source: General Services Administration

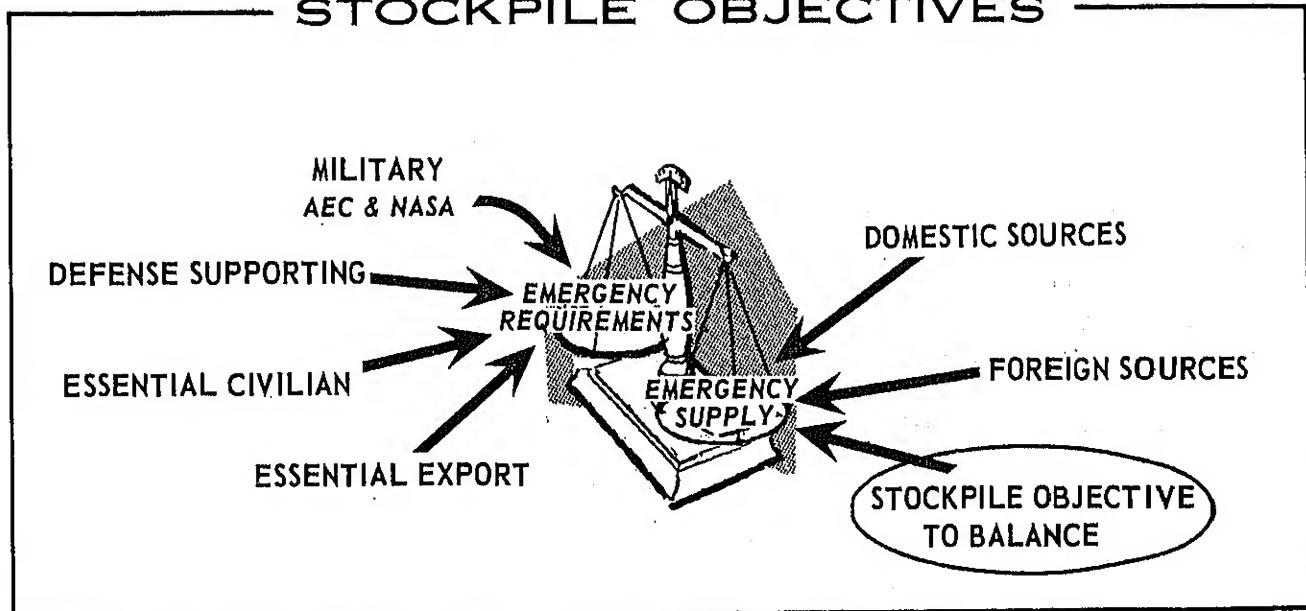
## STOCKPILE OBJECTIVES

Stockpile objectives have been calculated based on a 3-year war estimated to begin not less than one nor more than two years in the future. To determine the size and scope of the war effort, OEP projects the gross national product and its various components through the intervening years prior to the outbreak of the war and to each of the three war years.

Material usage and supply patterns are monitored to insure that present and future emergency needs for strategic and critical materials are accurately reflected in stockpile

planning. The stockpile requirements situation of specific commodities is then examined in the context of the national security guidance and the expected needs. These reviews cover a wide range of critical materials and are not limited to materials currently held in the stockpile. During the period, determinations were completed on 10 materials in the stockpile. Of this total, seven determinations were made for basic materials, and three on subobjectives for upgraded forms of stockpiled materials. Work also continued on a general review of all stockpile policy. The new and old levels for these materials are shown in the table on page 6.

## STOCKPILE OBJECTIVES



## STOCKPILE OBJECTIVES

Material	Unit	New Objective	Old Objective
Asbestos, amosite .....	ST	18,400	40,000
Chromite, chemical .....	SDT	250,000	260,000
Chromite, metallurgical .....	SDT	<u>3,086,800</u>	<u>3,100,000</u> <sup>1</sup>
Chromite, metallurgical ore .....	SDT	<u>2,910,550</u>	<u>2,910,550</u>
Chromium, ferro, high carbon .....	ST-E	176,250	176,250
(gw) ST		(70,500)	(70,500)
Chromium, ferro, low carbon .....	ST-E	0	0
Chromium, ferro, silicon .....	ST-E	0	0
Chromium Metal .....	ST	3,775	<sup>2</sup>
Molybdenum .....	LB	0	36,500,000
Nickel .....	ST	0	55,000
Pyrethrum .....	LB	63,375 <sup>3</sup>	25,000

<sup>1</sup> Includes chromite ore equivalent of 13,200 ST in chromium metal.

<sup>2</sup> Chromium metal was previously listed as subobjectives to chemical and metallurgical chromite. In June 1971, OEP established chromium metal as a basic material in the stockpile with an objective of 3,775 short tons.

<sup>3</sup> Objective established July 14, 1971.

### ABBREVIATIONS

- E - Ore Equivalent
- gw - Gross Weight
- LB - Pounds
- SDT - Short Dry Tons
- ST - Short Tons

The bar chart below shows the estimated market value of the objectives established and the extent to which materials on hand in all Government inventories (National Stockpile, Supplemental Stockpile, and Defense Production Act) meet these objectives.

As of June 30, 1971, total quantities of stockpile grade materials on hand and on order for all Government-owned inventories were in excess or equal to the stockpile objectives for 61 of the 72 basic materials on the List of Strategic and Critical Materials for Stockpiling.

In addition to specification grade materials, Government inventories contain some non-specification grades not credited to stockpile objectives. Much of the nonspecification grade materials in the National Stockpile was acquired by the transfer of Government-owned surpluses to the stockpile after World War II. Several were of specification grade when acquired but no longer qualify due to changes in industry practices and technological advances.

As a part of the program to maintain efficient stockpile management, efforts to dispose of stockpile excesses have continued. With the submission of 30 disposal proposals to the current Congress, the Administration has completed a program designed to obtain disposal authority for all excesses. Passage of these bills would provide disposal authority for all but three of the materials where excesses currently exist. Three commodities have been withheld from disposal planning due to market conditions. These will be programmed for disposal as soon as market conditions permit.

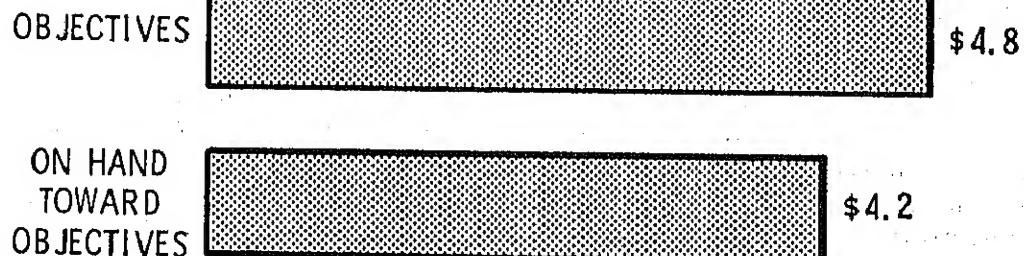
The objective, inventory, excess, and balance of disposal authorizations, for each material on the Strategic and Critical Materials List, are shown in the following summary. Disposal balances shown represent Congressional authorizations for sales of excess materials in the National and Supplemental Stockpiles or, in the case of DPA materials, sales approved by the Director, OEP. Inventory changes during the report period were due primarily to disposals or to reclassification, upgrading, and other adjustments in the inventories.

## **STATUS OF STOCKPILE OBJECTIVES**

June 30, 1971

(In Billions of Dollars)

Market Value



**SUMMARY OF GOVERNMENT INVENTORIES, OBJECTIVES,  
EXCESSES AND BALANCE OF DISPOSAL AUTHORIZATIONS**

Basic Stockpile Materials  
June 30, 1971

(Market Value - \$ Millions)

Commodity	Unit	Objective	Total Inventory <sup>1</sup>	Market Value <sup>2</sup>	Uncommitted Excess	Market Value <sup>2</sup>	Balance of Disposal Authorization
1. Aluminum .....	ST	450,000	1,281,267	\$743.1	831,267	\$482.1	831,267 <sup>3</sup>
2. Aluminum Oxide, Fused .....	ST	300,000	427,495	76.1	127,495	18.9	127,495
3. Antimony .....	ST	40,700	46,747	63.0	6,047 <sup>4</sup>	7.6	0
4. Asbestos, Amosite .....	ST	18,400	59,315	12.6	40,915 <sup>4</sup>	8.7	8,076
5. Asbestos, Chrysotile .....	ST	13,700	12,029	5.9	1,086	0.2	1,073
6. Bauxite, Metal, Jamaica .....	LDT	5,000,000	8,858,881	120.3	3,858,881 <sup>5</sup>	52.4	714,000
7. Bauxite, Metal, Surinam .....	LDT	5,300,000	5,300,000	54.3	0	0	0
8. Bauxite, Refractory .....	LCT	173,000	173,000	8.8	0	0	0
9. Beryl .....	ST	28,000	40,341	70.7	12,341 <sup>6</sup>	27.0	2,451
10. Bismuth .....	LB	2,100,000	2,335,457	14.0	235,457	1.4	235,457
11. Cadmium .....	LB	6,000,000	10,147,806	22.8	4,147,806	9.3	4,147,806
12. Castor Oil .....	LB	50,000,000	58,449,720	11.0	8,449,720	1.4	8,425,478
13. Chromite, Chemical .....	SDT	250,000	570,449	12.7	320,449 <sup>4</sup>	7.2	0
14. Chromite, Metallurgical .....	SDT	3,086,800	5,331,613	596.6	2,244,813 <sup>7</sup>	143.7	930,589
15. Chromite, Refractory .....	SDT	368,000	1,195,249	32.1	827,249	22.2	795,249
16. Chromium Metal .....	ST	3,775	8,013	18.4	4,238 <sup>4</sup>	9.7	0
17. Cobalt .....	LB	38,200,000	77,701,349	169.2	39,501,349	85.1	39,501,349
18. Columbium .....	LB	1,176,000	9,408,494	22.9	5,946,463 <sup>4</sup> <sup>8</sup>	10.0	935,747
19. Copper .....	ST	775,000	258,682	279.6	0	0	0
20. Cordage Fibers, Abaca .....	LB	25,000,000	64,836,564	15.9	39,836,564 <sup>4</sup>	9.8	14,924,929
21. Cordage Fibers, Sisal .....	LB	100,000,000	198,771,886	16.1	98,771,886 <sup>4</sup>	8.0	0
22. Diamond Dies, Small .....	PC	25,000	25,473	1.0	473	0.02	0
23. Diamond, Industrial Bort .....	KT	23,700,000	42,611,479	101.4	18,911,479 <sup>4</sup>	42.6	0
24. Diamond, Industrial Stones .....	KT	20,000,000	25,141,634	311.6	5,141,634 <sup>4</sup>	78.0	177,840
25. Feathers and Down .....	LB	3,000,000	3,000,000	10.9	0	0	0
26. Fluorspar, Acid Grade .....	SDT	540,000	891,974	67.8	1,974 <sup>9</sup>	.1	1,974
27. Fluorspar, Metallurgical .....	SDT	850,000	411,788	24.7	0	0	0
28. Graphite, Natural, Ceylon .....	ST	5,500	5,499	1.0	0	0	0
29. Graphite, Natural, Malagasy .....	ST	18,000	31,197	3.5	13,257	1.5	13,257
30. Graphite, Other .....	ST	2,800	2,800	0.6	0	0	0
31. Iodine .....	LB	8,000,000	8,011,814	15.5	11,814	0.02	0
32. Jewel Bearings .....	PC	57,500,000	59,454,246	19.2	14,726,698 <sup>10</sup>	0.4	0
33. Lead .....	ST	530,000	1,133,905	328.8	603,905 <sup>7</sup>	175.1	105,772
34. Manganese, Battery, Natural .....	SDT	135,000	308,350	27.3	173,350	14.5	173,350
35. Manganese, Battery,							
Synthetic Dioxide .....	SDT	1,900	19,667	9.1	17,767 <sup>4</sup>	8.2	12,962

**SUMMARY OF GOVERNMENT INVENTORIES, OBJECTIVES,  
EXCESSES AND BALANCE OF DISPOSAL AUTHORIZATIONS (Continued)**

Basic Stockpile Materials  
June 30, 1971

(Market Value - \$ Millions)

Commodity	Unit	Objective	Total Inventory <sup>1</sup>	Market Value <sup>2</sup>	Uncommitted Excess	Market Value <sup>2</sup>	Balance of Disposal Authorization
36. Manganese Ore, Chemical A . . . . .	SDT	35,000	146,914	\$ 10.3	111,914	\$ 7.8	111,914
37. Manganese Ore, Chemical B . . . . .	SDT	35,000	100,838	7.1	65,838	4.6	65,838
38. Manganese, Metallurgical . . . . .	SDT	4,000,000	11,896,166	430.1	7,949,791 <sup>4</sup>	241.9	3,519,902
39. Mercury . . . . .	FL	126,500	200,105	58.0	73,605 <sup>5</sup>	21.3	0
40. Mica, Muscovite Block St./better . . . . .	LB	6,000,000	14,410,033	54.6	7,650,533 <sup>6</sup> <sup>1,2</sup>	15.7	6,308,798
41. Mica, Muscovite Film, 1 & 2 quality . . . . .	LB	2,000,000	1,468,980	16.5	640 <sup>4</sup> <sup>1,2</sup>	0	640
42. Mica, Muscovite Splittings . . . . .	LB	19,000,000	41,704,558	50.0	22,704,558 <sup>4</sup>	27.2	21,004,683
43. Mica, Phlogopite Block . . . . .	LB	150,000	168,580	0.1	151,859	0.03	151,859
44. Mica, Phlogopite Splittings . . . . .	LB	950,000	4,806,943	7.7	3,856,943 <sup>4</sup>	6.2	3,507,345
45. Molybdenum . . . . .	LB	0	42,603,508	76.9	42,603,508 <sup>7</sup>	76.9	6,090,723
46. Nickel . . . . .	ST	0	40,006	106.1	40,006 <sup>7</sup>	106.1	0
47. Opium . . . . .	AvLB	143,000	141,602	14.0	88	0.005	0
48. Platinum Group, Iridium . . . . .	TrOz	17,000	17,176	2.6	184 <sup>4</sup>	0.03	0
49. Platinum Group, Palladium . . . . .	TrOz	1,300,000	1,249,738	46.2	0	0	0
50. Platinum Group, Platinum . . . . .	TrOz	555,000	450,076	54.0	0	0	0
51. Pyrethrum . . . . .	LB	63,375 <sup>1,3</sup>	63,375	0.6	0	0	0
52. Quartz Crystals . . . . .	LB	320,000	4,974,653	54.1	4,654,653 <sup>4</sup>	50.4	4,324,653
53. Quinidine . . . . .	OZ	2,000,000	1,800,377	4.2	0	0	0
54. Quinine . . . . .	OZ	4,130,000	3,548,161	5.8	0	0	0
55. Rubber . . . . .	LT	200,000	341,924	133.1	141,924	55.3	141,924
56. Rutile . . . . .	SDT	100,000	56,525	10.5	0	0	0
57. Sapphire & Ruby . . . . .	KT	18,000,000	16,305,502	0.2	0	0	0
58. Shellac . . . . .	LB	1,000,000	6,252,029	2.9	5,252,029 <sup>4</sup>	2.4	2,352,029
59. Silicon Carbide, Crude . . . . .	ST	30,000	196,453	42.6	166,453 <sup>7</sup>	36.1	0
60. Silver . . . . . (fine)TrOz	139,500,000	139,500,000	220.0	0	0	0	0
61. Sperm Oil . . . . .	LB	23,400,000	23,402,661	6.1	0	0	0
62. Talc, Steatite Block & Lump . . . .	ST	200	1,204	0.4	1,004	0.3	1,004
63. Tantalum . . . . .	LB	3,400,000	4,181,102	39.2	968,123 <sup>1,4</sup>	8.0	0
64. Thorium Oxide . . . . .	ST	40	40 <sup>1,5</sup>	0.3	0	0	0
65. Tin . . . . .	LT	232,000	251,632	935.7	19,632	73.0	19,632
66. Titanium Sponge . . . . .	ST	33,500	35,015	85.6	8,514	18.0	8,514
67. Tungsten . . . . .	LB	60,000,000	129,141,867	368.0	69,141,867	194.4	68,886,097
68. Vanadium . . . . .	ST	540	3,307	21.5	2,767 <sup>4</sup>	18.6	1,567

**SUMMARY OF GOVERNMENT INVENTORIES, OBJECTIVES,  
EXCESSES AND BALANCE OF DISPOSAL AUTHORIZATIONS (Continued)**

**Basic Stockpile Materials  
June 30, 1971**

(Market Value - \$ Millions)

Commodity	Unit	Objective	Total Inventory <sup>1</sup>	Market Value <sup>2</sup>	Uncommitted Excess	Market Value <sup>2</sup>	Balance of Disposal Authorization
69. Vegetable Tannin, Chestnut . . . . .	LT	9,500	21,297	\$ 7.3	11,797 <sup>4</sup>	\$ 4.7	11,282
70. Vegetable Tannin, Quebracho . . . . .	LT	50,600	188,103	53.1	137,503 <sup>4</sup>	38.8	102,216
71. Vegetable Tannin, Wattle . . . . .	LT	9,500	34,289	8.8	24,789 <sup>4</sup>	6.4	19,328
72. Zinc . . . . .	ST	560,000	1,119,958	358.4	559,958 <sup>7</sup>	179.2	44,784

**FOOTNOTES**

<sup>1</sup> Total inventory consists of stockpile and nonstockpile grades and reflects uncommitted balance.

<sup>2</sup> Market values are estimated from prices at which similar materials are being traded; or in the absence of trading data, at an estimate of the price which would prevail in the market. Prices used are unadjusted for normal premiums and discounts relating to contained qualities or normal freight allowances. *The market values do not necessarily reflect the amount that would be realized at time of sale.*

<sup>3</sup> Committed for sale but undelivered under long-term contracts.

<sup>4</sup> Balance of excess pending Congressional approval.

<sup>5</sup> Balance of excess; disposal planning deferred due to market conditions.

<sup>6</sup> Excess quantity includes 3,617 ST in beryllium copper master alloy and 3,160 ST in beryllium metal.

<sup>7</sup> Balance of excess deferred by the Congress.

<sup>8</sup> Excludes that quantity represented by tantalum contained in columbium minerals.

<sup>9</sup> Excludes 350,000 SDT credited to metallurgical fluorspar.

<sup>10</sup> Factory inspecting feasibility of reworking bearings to meet stockpile specifications.

<sup>11</sup> Excludes 759,500 LBS credited to mica, muscovite film.

<sup>12</sup> Excludes 51,087 LBS nonstockpile quality material for which Congressional approval has been requested. Déficit in objective covered by crediting muscovite block, ST/better mica against this requirement.

<sup>13</sup> Objective established July 14, 1971.

<sup>14</sup> Material required in upgrading.

<sup>15</sup> Thorium nitrate credited as 40 ST thorium oxide, \$0.3 million market value.

**ABBREVIATIONS**

FL - Flask	OZ - Ounce
KT - Carat	PC - Piece
LB - Pound	SDT - Short Dry Ton
LCT - Long Calcined Ton	ST - Short Ton
LDT - Long Dry Ton	TrOz - Troy Ounce
LT - Long Ton	

**OTHER MATERIALS IN  
GOVERNMENT INVENTORIES**

Inventories of materials that have been removed from the stockpile list, and of other

materials for which there are no stockpile objectives, are indicated in the table below. These inventories are not included in the previous tabulation.

**SUMMARY OF GOVERNMENT INVENTORIES AND BALANCE OF  
DISPOSAL AUTHORIZATIONS COVERING MATERIALS FOR  
WHICH THERE ARE NO STOCKPILE OBJECTIVES**

June 30, 1971

(Market Value - \$ Millions)

Commodity	Unit	Total Inventory <sup>1</sup>	Market Value <sup>2</sup>	Balance of Disposal Authorization
Asbestos, crocidolite . . . . .	ST	37,205	\$ 7.5	37,205
Celestite . . . . .	SDT	25,849 <sup>3</sup>	0.7	13,579
Diamond tools . . . . .	PC	64,178 <sup>3</sup>	0.8	0
Kyanite-Mullite . . . . .	SDT	4,820 <sup>3</sup>	0.5	0
Magnesium . . . . .	ST	98,774 <sup>3</sup>	63.7	20,721
Mica, muscovite block, St. B/lower . . . . .	LB	3,573,178	7.1	3,573,178
Mica, muscovite film, 3rd quality . . . . .	LB	448,790	3.0	448,790
Rare earths . . . . .	SDT	12,241 <sup>3</sup>	4.0	4,008
Selenium . . . . .	LB	474,774 <sup>3</sup>	4.3	0
Talc, steatite ground . . . . .	ST	3,900	0.02	3,900
Thorium nitrate . . . . .	LB	3,661,397 <sup>4</sup>	14.9	3,161,397
Zirconium ore, baddeleyite . . . . .	SDT	16,114	1.0	16,114
Zirconium ore, zircon . . . . .	SDT	1,720	0.002	1,720

<sup>1</sup> Inventory reflects uncommitted balance.

<sup>2</sup> Market values are estimated from prices at which similar materials are being traded; or in the absence of trading data, at an estimate of the price which would prevail in the market. Prices used are unadjusted for normal premiums and discounts relating to contained qualities or normal freight allowances. *The market values do not necessarily reflect the amount that would be realized at time of sale.*

<sup>3</sup> Balance of excess pending Congressional approval.

<sup>4</sup> Includes 80,000 pounds credited to thorium oxide objective, \$0.3 million market value. Balance of excess pending Congressional approval.



Panoramic view of the Climax mine of Climax Molybdenum Company. This facility is geared to concentrate 42,000 tons of ore per day.

## NATIONAL STOCKPILE ACTIVITIES

### PROCUREMENT AND UPGRADING

The OEP Strategic Stockpile Procurement Directive for FY 1971, issued February 2, 1971, provided for the cash procurement of two million pieces of jewel bearings from the Federal facility at Rolla, North Dakota. On May 7, 1971, OEP authorized the upgrading of 2,848 troy ounces of platinum and 2,234 troy ounces of palladium which were declared by the Bureau of the Mint, Department of the Treasury, to be excess to its needs. (Subsequently, on July 14, 1971, OEP issued the Procurement Directive for FY 1972 which provided for the cash purchase of two million pieces of jewel bearings and the rotation of the entire stockpile inventory of pyrethrum.) Payment for these upgrading services is to be made with excess stockpile materials authorized for disposal.

### PROCUREMENT - CASH

**Jewel Bearings.** The Government-owned William Langer Jewel Bearing Plant, Rolla, North Dakota, which is operated by the Bulova Watch Company, Incorporated, continued to produce jewel bearings for the National Stockpile and for defense contractors under the 3-year management operating contract, effective January 1, 1970.

The continuous rate of net income generation of this new operation indicated the need for a downward revision of jewel bearing sales prices in order that the revolving fund operation could be brought closer to a breakeven position. The Official United States Government Jewel Bearing Price List was revised by

GSA on March 25, 1971. The new price list contains an expanded schedule of prices which are intended to coincide more nearly with actual cost experiences. The new prices are lower for the majority of jewel bearing types produced by the plant. Prices remain the same for some categories, while for others, such as vee jewels, prices are higher. The net effect of the new sales prices, however, was a general price reduction.

Mandatory source provisions in the Armed Services Procurement Regulations (ASPR), Section 1-315, for the purchase and use of jewel bearings by the Department of Defense contractors and subcontractors were also revised in an effort to strengthen compliance requirements. These were announced in the Defense Procurement Circular, Issue No. 87, April 22, 1971.

Department of Defense instructions provided that the revised ASPR provisions, and the new jewel bearing sales prices, become effective for all procurement transactions entered into on or after July 1, 1971.

### PROCUREMENT - EXCHANGE

**Ferrocolumbium.** Under the contract entered into on March 31, 1969, for furnishing Grade B ferrocolumbium containing 279,000 pounds of columbium, 186,057 pounds have been delivered and accepted for the stockpile as of June 30, 1971. The balance of 92,943 pounds has been tendered for delivery and acceptance thereof is pending results of the analysis.

Million Dollars

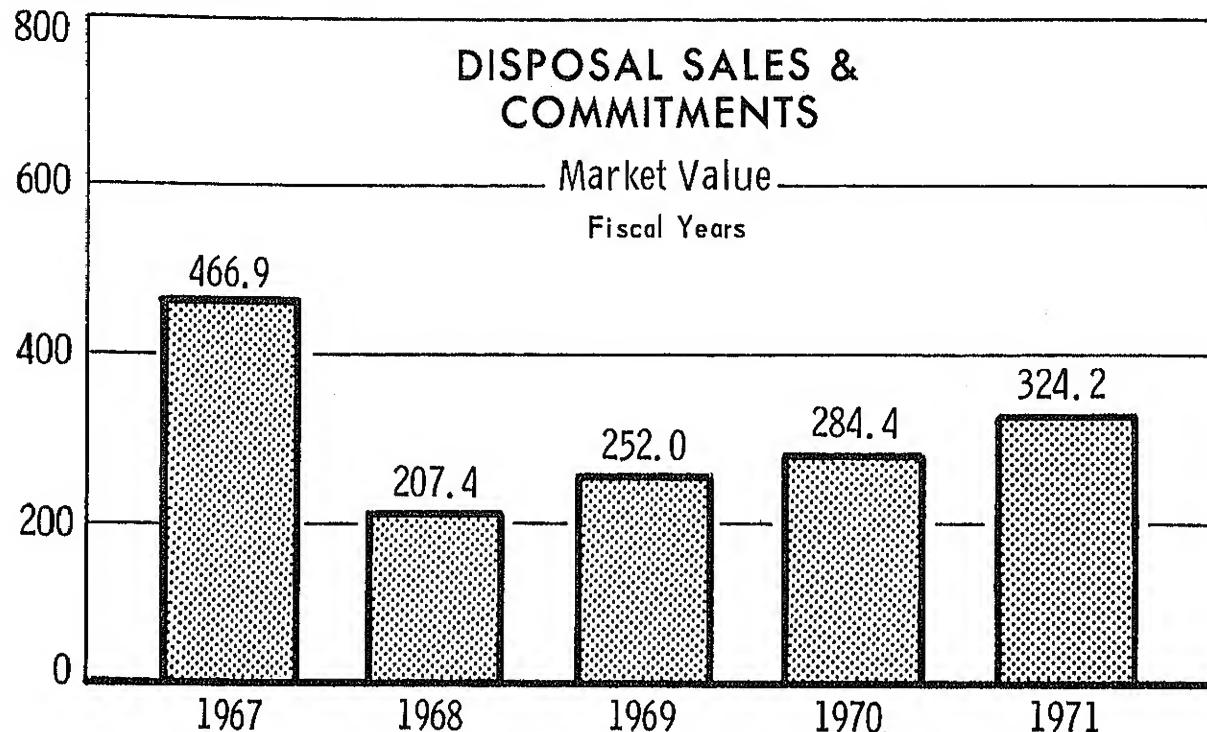


Figure 1

Million Dollars

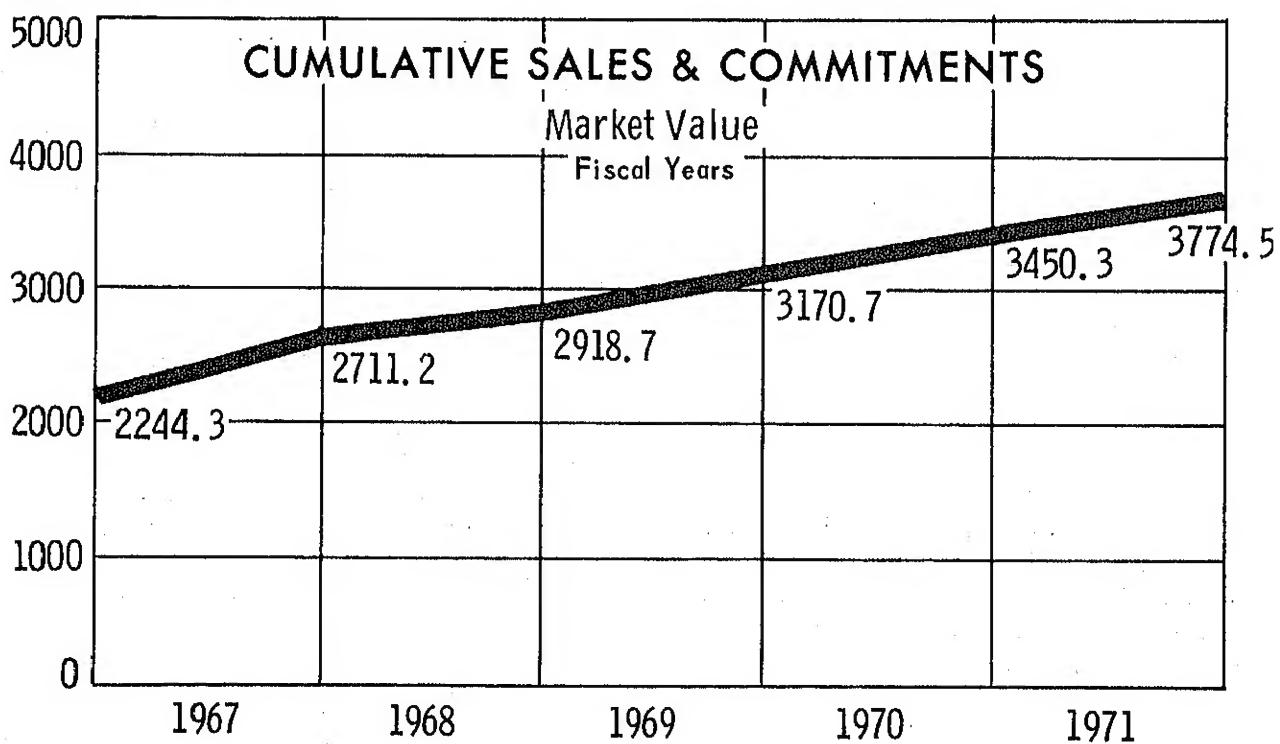


Figure 2

**Ferromanganese - Palladium.** Under a contract entered into on August 31, 1967, 200,000 troy ounces of palladium have been delivered to the stockpile. This contract also provided for upgrading of manganese ore to 36,000 short tons of medium carbon ferromanganese. As of June 30, 1971, 28,920 short tons of ferromanganese had been received. On November 9, 1970, the contract was amended to extend the final delivery date from June 30, 1971, to March 31, 1972.

**Platinum.** Deliveries under the contract entered into on March 17, 1969, for refining 200,000 troy ounces of Government-owned platinum and four ounces of iridium were completed on March 8, 1971.

#### **DISPOSAL PROGRAM**

Disposal sales from all Government inventories during the period totaled \$209.4 million--an increase of \$90.1 million from the \$114.8 million realized during the previous six months. Of the total sales, approximately \$82.7 million were from the National and

Supplemental Stockpiles, \$125.2 million from the Defense Production Act inventory, and \$1.5 million from other sales.

Approximately 99.6 percent (\$208.6 million) of total disposals for the period consisted of nine materials. These were *Surinam bauxite*, \$26.2 million; *cobalt*, \$1.2 million; *copper*, \$130.3 million; *cordage fibers, abaca*, \$1.5 million; *acid fluorspar*, \$8.2 million; *metallurgical manganese*, \$4.1 million; *, \$28.4 million; *tin*, \$3.6 million; and *tungsten*, \$5.1 million.*

During the report period, Government use sales exceeded industrial use sales by \$60.0 million. This is the first time this has occurred since such reporting of sales was begun in 1965.

Cumulative sales since the inception of the disposal program in 1958 total approximately \$3.8 billion. Figures 1 and 2, page 14. The commodities and quantities of each material making up the total sales for January-June are listed in the table which follows on Page 16.

**DISPOSALS OF STRATEGIC AND CRITICAL MATERIALS**

January - June 1971

Material	Unit	Quantity	Sales Commitments		
			Government Use	Industrial Use	Total Sales Value
<b>NATIONAL AND SUPPLEMENTAL STOCKPILE INVENTORIES:</b>					
Aluminum .....	ST	20	\$	\$ 11,800	\$ 11,800
Aluminum Oxide .....	ST	1,008		81,836	81,836
Asbestos, Amosite .....	ST	1,142		224,701	224,701
Asbestos, Chrysotile .....	ST	94		33,840	33,840
Asbestos, Crocidolite .....	ST	85		43,715	43,715
Bauxite, Surinam .....	LDT	2,466,438		26,229,228	26,229,228
Beryl .....	ST	261		108,950	108,950
Bismuth .....	LB	15,500		93,025	93,025
Cadmium .....	LB	1,000		2,300	2,300
Castor Oil .....	LB	5,163,537		776,775	776,775
Chromite, Chemical .....	SDT	-8,372		-131,711 <sup>1</sup>	-131,711 <sup>1</sup>
Chromite, Metallurgical .....	SDT	8,779		8,500	8,500
Chromite, Refractory .....	SDT	11,100		297,800	297,800
Cobalt .....	LB	571,426		1,227,366	1,227,366
Cordage Fibers, Abaca .....	LB	8,139,050	218,238	1,309,452	1,527,690
Cordage Fibers, Sisal .....	LB	472,560		36,536	36,536
Diamond Stones .....	KT	91,810		652,148	652,148
Fluorspar, Acid Grade .....	SDT	110,669		8,182,121	8,182,121
Graphite, Nat., Malagasy .....	ST	810		99,204	99,204
Lead .....	ST	2,785	603,636		603,636
Magnesium .....	ST	875	498,750	81,800	580,550
Manganese, Bat. Grade, Natural .....	SDT	486		21,870	21,870
Manganese, Bat. Grade, Synthetic Dioxide .....	SDT	2,012		681,220	681,220
Manganese, Metallurgical .....	SDT	214,516		4,075,413	4,075,413
Mica, Muscovite Block .....	LB	4,787		5,744	5,744
Mica, Muscovite Film .....	LB	2,410		2,265	2,265
Mica, Muscovite Splittings .....	LB	109,778		27,867	27,867
Mica, Phlogopite Splittings .....	LB	46,053		15,617	15,617
Nickel .....	LB	20,000,000		28,375,000	28,375,000
Quartz Crystals .....	LB	80,149		188,147	188,147
Rare Earths .....	SDT	1,098		555,570	555,570
Shellac .....	LB	787,060		185,051	185,051
Tin .....	LT	980	3,611,387		3,611,387
Tungsten .....	LB	1,024,008		3,885,458	3,885,458

**DISPOSALS OF STRATEGIC AND CRITICAL MATERIALS (Continued)**

January - June 1971

Material	Unit	Quantity	Sales Commitments		
			Government Use	Industrial Use	Total Sales Value
<b>Vegetable Tannins:</b>					
Chestnut .....	LT	753	\$	\$ 107,848	\$ 107,848
Quebracho .....	LT	1,100		271,702	271,702
Wattle .....	LT	45	_____	10,000	10,000
<b>Total National and Supplemental</b>					
Stockpiles .....			\$ 4,932,011	\$77,778,158	\$ 82,710,169
<b>DEFENSE PRODUCTION ACT INVENTORY:</b>					
Chromite, Metallurgical .....	SDT	-899,950	\$	\$ -6,450,000 <sup>1</sup>	\$ -6,450,000 <sup>1</sup>
Copper .....	ST	108,772 <sup>2</sup>	130,254,298		130,254,298
Manganese, Metallurgical .....	SDT	835		10,013	10,013
Mica, Muscovite Block .....	LB	137,021		73,460	73,460
Tungsten .....	LB	358,152	_____	1,248,851	1,248,851
<b>Total DPA .....</b>			\$130,254,298	\$ -5,117,676	\$125,136,622
<b>OTHER (Non-stockpile Inventories):</b>					
Bauxite .....	LDT	110,000	\$	\$ 500,000	\$ 500,000
Copper .....	ST			-663 <sup>3</sup>	-663 <sup>3</sup>
Mercury .....	FL	3,000		1,060,500	1,060,500
Silver .....	Fine TrOz		_____	-45,906 <sup>3</sup>	-45,906 <sup>3</sup>
<b>Total OTHER .....</b>			_____	\$ 1,513,931	\$ 1,513,931
<b>GRAND TOTAL .....</b>			\$135,186,309	\$74,174,413	\$209,360,722

<sup>1</sup> Negative sales figure represents adjustment of earlier disposal contracts.

<sup>2</sup> Represents that portion of copper made available to the U. S. Mint for coinage purposes.

<sup>3</sup> Negative sales figures represent adjustment in earlier sales contracts for Treasury silver copper alloy. Copper value receipts shown represent difference in proceeds over and above asset value of \$.4215 per pound. Silver value receipts represent difference in that portion of total proceeds in excess of the U. S. monetary value of \$1.2929 per ounce.

## STOCKPILE DISPOSAL LEGISLATION

During January-June, a total of 30 disposal proposals, for materials valued at approximately \$1.0 billion, was submitted to the 92nd Congress. Hearings on 28 of these bills were held in the Senate in April, and 26 bills, for materials valued at approximately \$600.0 million, were passed by the Senate on June 21. Of the two bills not passed by the Senate, one (covering lead, valued at approximately \$135.0 million) was rejected and one was deferred. The latter would have authorized the disposal of approximately \$135.2 million worth of metallurgical grade chromite in various forms. The two bills not yet introduced would have authorized the disposal of molybdenum and nickel, which became excess as a result of stockpile objective re-

views during the report period. These two bills have a combined value of approximately \$170.0 million.

With submission of these 30 bills, the Administration has requested disposal authority for all existing excesses in the stockpile except the three materials (Jamaica type metallurgical grade bauxite, beryl, and mercury) where market conditions have precluded requests for necessary authority. When market conditions improve, disposal proposals will be promptly submitted to the Congress.

The status of stockpile disposal legislation, including those pending action, at the close of the report period is indicated in the following table:

### LEGISLATION PASSED BY THE SENATE PENDING HOUSE ACTION

Material	Unit	Quantity	Market Value (\$Millions)	Bill Number
Antimony .....	ST	6,000	\$ 6.8	S.765
Asbestos, Amosite .....	ST	32,839	7.0	S.763
Celestite .....	ST	12,270	0.4	S.772
Chromite, Chemical Grade .....	SDT	324,500	8.4	S.768
Chromium Metal .....	ST	4,238	9.7	S.762
Columbium .....	LBS	5,010,716	8.1	S.770
Cordage Fibers, Abaca .....	LBS	25,000,000	6.0	S.776
Cordage Fibers, Sisal .....	LBS	100,000,000	7.5	S.777
Diamonds, Industrial Bort .....	KT	18,912,000	42.6	S.751
Diamonds, Industrial Stones .....	KT	4,961,000	24.8	S.769
Diamond Tools .....	PCS	64,178	0.7	S.761
Kyanite-Mullite .....	SDT	4,820	0.5	S.778
Magnesium .....	ST	78,000	49.9	S.775
Manganese, Battery Grade, Synthetic Dioxide .....	SDT	4,805	2.4	S.760
Manganese, Metallurgical .....	SDT	4,424,840	170.0	S.759

**LEGISLATION PASSED BY THE SENATE  
PENDING HOUSE ACTION (Continued)**

Material	Unit	Quantity	Market Value (\$ Millions)	Bill Number
Micas: Muscovite and Phlogopite .....	LBS	5,026,987	\$ 8.7	S.758
Platinum Group Metal, Iridium .....	TrOz	256	0.04	S.757
Quartz Crystals .....	LBS	330,000	3.8	S.756
Rare Earths .....	SDT	8,233	2.1	S.767
Selenium .....	LBS	475,000	3.8	S.771
Shellac .....	LBS	2,900,000	1.1	S.755
Silicon Carbide .....	ST	166,453	36.1	S.754
Thorium (Oxide Content) .....	ST	210	1.7	S.753
Vanadium .....	ST	1,200	9.8	S.774
Vegetable Tannins .....	LT	46,263	12.7	S.752
Zinc .....	ST	515,200	<u>154.6</u>	S.766
Total			\$579.2	

**LEGISLATION DENIED BY THE SENATE**

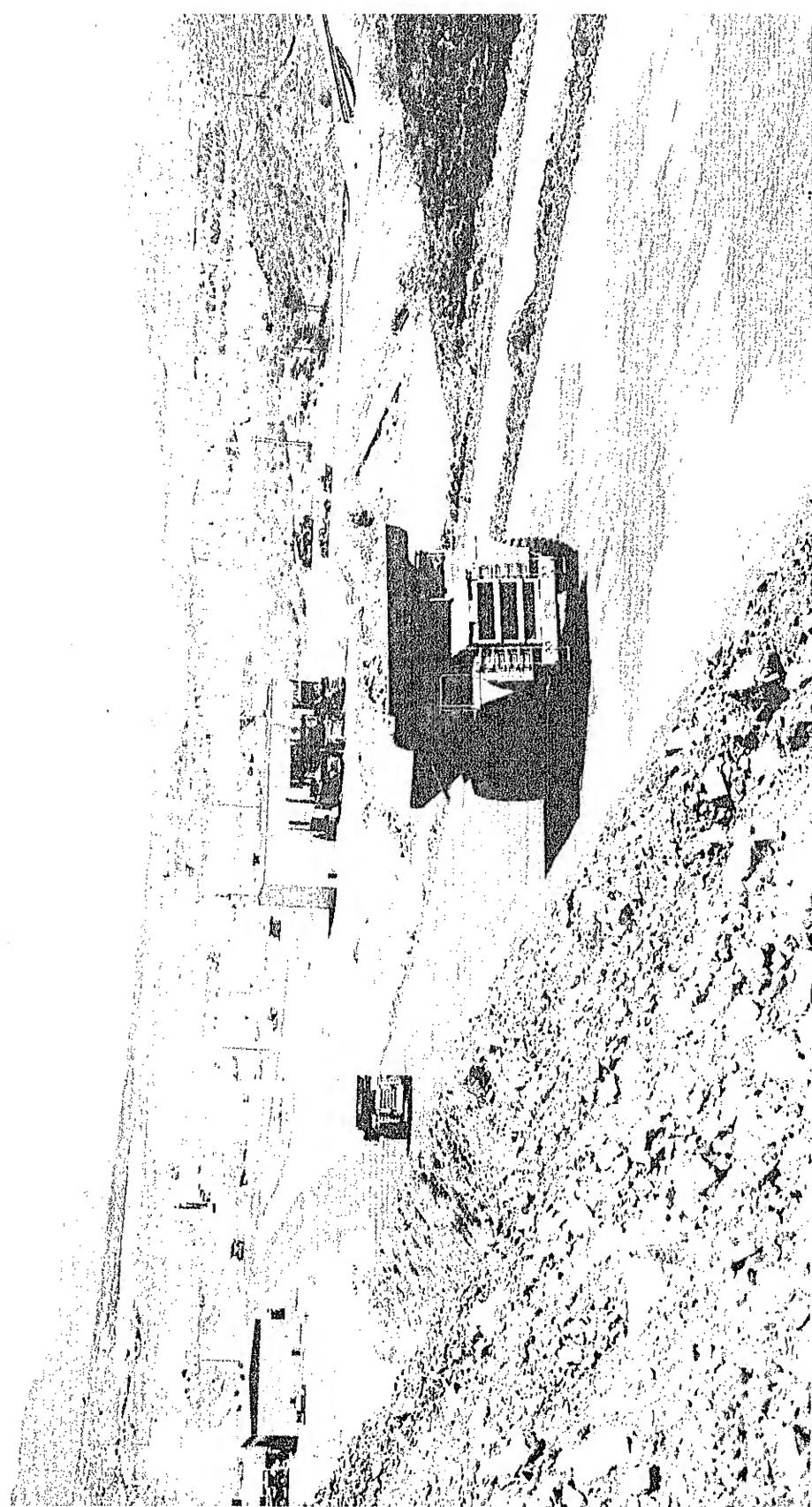
Material	Unit	Quantity	Market Value (\$ Millions)
Lead	ST	498,000	\$134.5

**LEGISLATION DEFERRED BY THE SENATE**

Chromite, Metallurgical	SDT	1,313,641	\$135.2
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**LEGISLATION NOT YET INTRODUCED**

Molybdenum	LBS	35,216,348	\$ .65.7
Nickel	ST	38,876	103.2



Duval Sierrita copper mine.

Building on right is the primary ore crusher containing two 60"x89" crushers, each capable of crushing 3,000-3,200 tons of ore per hour to 6" size.

## NOTES ON STRATEGIC AND CRITICAL MATERIALS DISPOSAL ACTIVITIES JANUARY-JUNE 1971

### Bauxite, Metallurgical Grade, Surinam Type

Surinam type bauxite sales totaled 2,466,438 long dry tons, valued at \$26.2 million. These sales exhausted the excess of this material from the National and Supplemental Stockpiles authorized for disposal by Public Law 91-326, enacted July 10, 1970. The demand for this material is tied, in part, to the uncertainty over supplies of Surinam type bauxite from Guyana.

### Copper

Approximately 109,000 short tons of copper, valued at \$130.3 million, scheduled to be delivered to the Government from the Duval Sierrita Corporation under the Defense Production Act copper expansion program, were made available to the U.S. Mint. The Duval-produced copper is to be used by the Mint in the production of cupro-nickel coinage, including the Eisenhower dollar coin. It will reduce the Mint's need to make purchases of copper in the commercial market. Under terms of the agreement with the Mint, the Defense Production Act account received market prices for this copper.

Duval Sierrita, a subsidiary of the Duval Corporation of Houston, Texas, received a Government advance of \$83 million under a contract executed November 28, 1967, under Defense Production Act authority. At that time, the Corporation agreed to repay the advance by deliveries of copper to the Government at a fixed price of 38¢ per pound, a price significantly below current market prices.

### Fluorspar, Acid Grade

Disposal sales of acid grade fluorspar totaled 110,669 short dry tons, valued at \$8.2 million. These sales virtually completed disposals authorized under Public Law 91-320, enacted July 10, 1970.

### Nickel

In February, the stockpile objective for nickel was reduced to zero. With the reduction in the stockpile objective, nickel loaned under Section 5 of the Stock Piling Act by President Nixon on December 15, 1969, does not have to be returned to the stockpile. Therefore, negotiations were undertaken with the contractor, who had received the nickel on loan, to determine the possibility of converting the loan to a cash repayment. These negotiations were successful, and the 20-million pound loan was converted to a cash sale, valued at \$28.4 million. In addition, legislation which would authorize the disposal of all other nickel in inventory was submitted to the Congress. This legislation, for nickel valued at approximately \$100.0 million, was not acted upon during the report period.

### Tin

There were no commercial sales of excess stockpile tin. However, sales of tin under the Government-use program to Agency for International Development recipients totaled 980 long tons, valued at \$3.6 million. These disposals brought to 96,987 long tons, valued at \$336.0 million, the tin sold under the long-term disposal program initiated in 1962.

## Tungsten

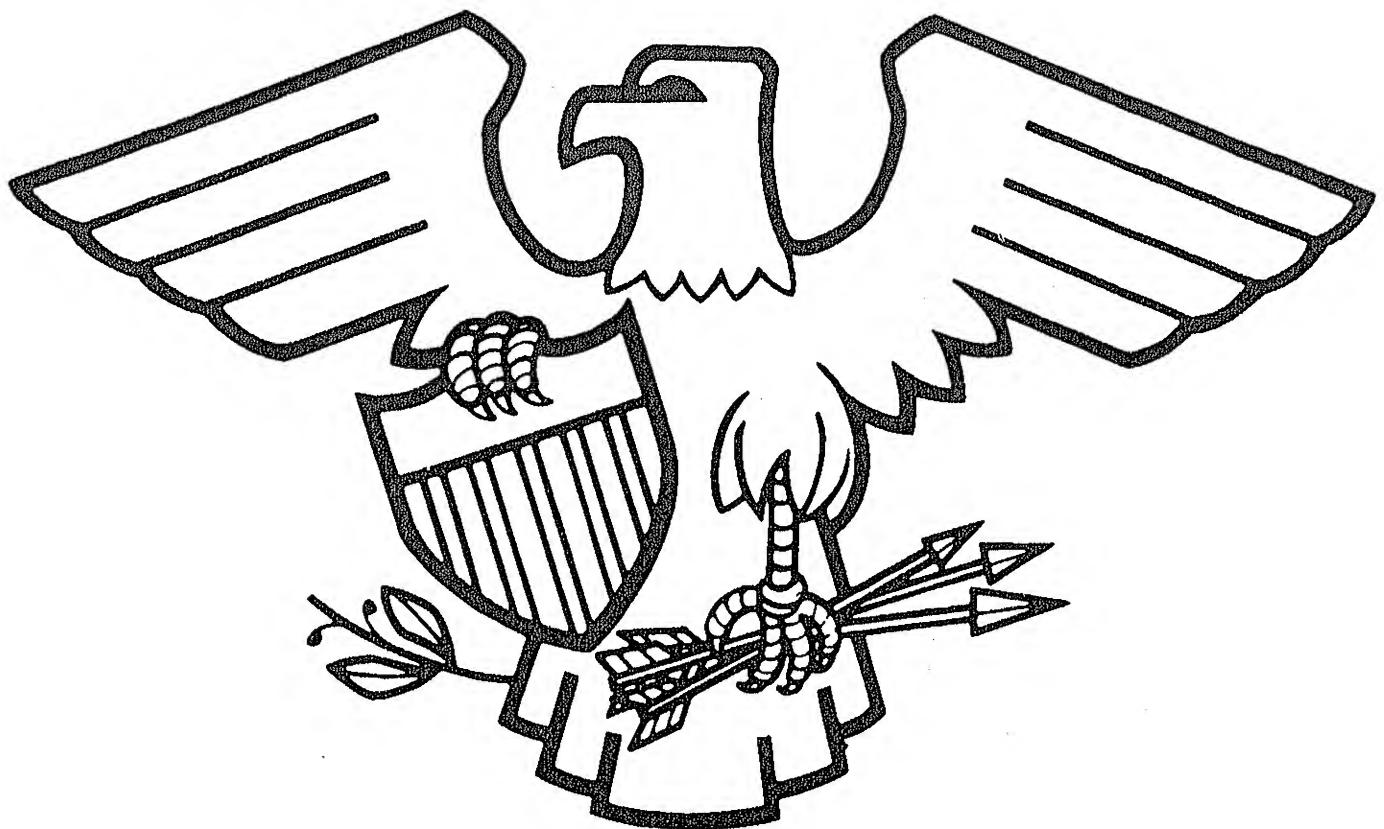
Tungsten disposals totaled approximately 1.4 million pounds, valued at \$5.1 million.

Disposals in the last three years have now totaled 56.0 million pounds, valued at \$155.6 million.



Outloading of bauxite.

# **GOVERNMENT ACTIVITIES**



***General Services Administration  
Department of Commerce  
Department of State  
Department of Agriculture  
Department of Interior  
Bureau of Mines  
U. S. Geological Survey***

## ACTIVITIES OF THE GENERAL SERVICES ADMINISTRATION RELATING TO STOCKPILING OF STRATEGIC AND CRITICAL MATERIALS

The General Services Administration is charged with the general operating responsibility, under policies set forth by the Office of Emergency Preparedness, for stockpile management, including (1) purchasing and making commitments to purchase, transferring, rotating, upgrading, and processing of metals, minerals, and other materials; (2) storage and maintenance of all strategic materials held in Government inventories; and (3) disposal of excess stockpile materials, including the development of disposal plans, selling the materials, and providing for Government use

of such materials.

The activities of the General Services Administration, particularly in connection with procurement, upgrading, and disposals, have been summarized in earlier sections of this report.

### STORAGE AND MAINTENANCE

On June 30, 1971, there were 44.4 million tons of strategic materials stored at 134 locations as follows:

	<u>As of June 30, 1971</u>	<u>Change in last 6 months</u>
Military depots	35	
GSA depots	30	
Other Government-owned sites	18	
Leased commercial sites	12	
Industrial plantsites	38	
Commercial warehouses	1	- 1
 Total	 134	 - 1

One commercial warehouse in Lowell, Massachusetts, was evacuated of stockpile materials during the period.

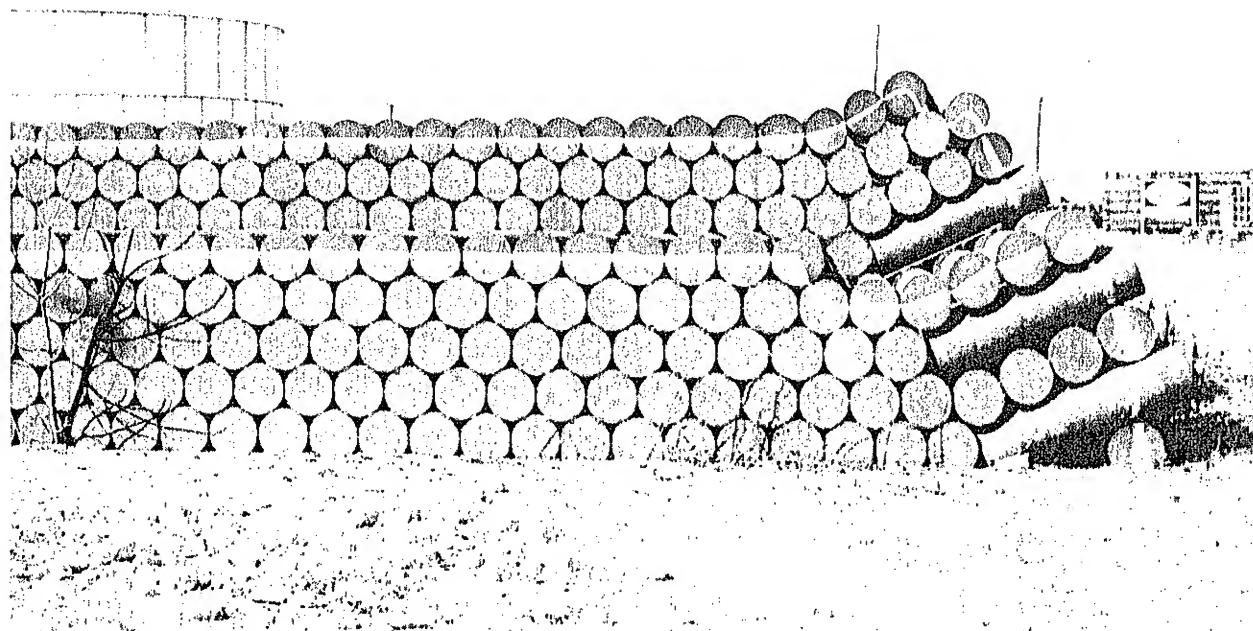
A total of 855,000 tons of stockpile materials was shipped from depots during the report period, making a total of 1,342,000 tons shipped during fiscal year 1971, a substantial increase over the 707,000 tons shipped last fiscal year, and comparable to the

1,223,000 tons shipped in 1966, and 1,207,000 tons shipped in 1967.

Pursuant to Section 202 of Public Law 91-607, 91st Congress, approved December 31, 1970, 25.5 million ounces of silver were transferred from the National Stockpile to the Secretary of the Treasury for use in coining the new Eisenhower silver dollars.



Lead. Used in making pipes, cable coverings, solders and babbitts, storage battery plates, pigments, linings of acid tanks, various alloying purposes, and chemicals.



Copper billets stored for use in making tubing, rods, bars, etc.

## ACTIVITIES OF THE DEPARTMENT OF COMMERCE RELATING TO STOCKPILING OF STRATEGIC AND CRITICAL MATERIALS

### RESPONSIBILITIES

The Department of Commerce has been delegated a number of responsibilities with regard to the National Stockpile, and these in turn have been assigned to the Bureau of Domestic Commerce within the Department. BDC prepares for the Office of Emergency Preparedness estimates of essential civilian and war-supporting requirements for strategic materials in a mobilization period, a basic element in determining stockpile objectives. In certain limited cases, it also prepares estimates of the mobilization supply of such materials. It reviews plans for disposal of surplus stockpile materials and provides OEP or GSA with its evaluation of the market impact of proposed schedules of sales. In addition, it develops recommendations in the matter of purchase specifications, special instructions, and storage procedures. BDC also prepares special studies for OEP regarding strategic material problems and, in general, submits to OEP on behalf of the Department recommendations or advice on stockpile policies and programs.

### ESSENTIAL CIVILIAN AND WAR-SUPPORTING REQUIREMENTS

During January-June 1971, BDC submitted consumption data to OEP for 49 stockpile items for the years 1950-1964. These data were a continuation of the data series submitted by BDC last October for the years 1965-1969 by industry sectors established by the Office of Business Economics. The expanded data base should result in improved projections regarding the consumption of

strategic and critical materials. BDC also submitted three basic data studies (chrysotile asbestos, rhenium, and silicon carbide) which included estimated essential civilian and war-supporting requirements during an assumed 3-year conventional war.

### DISPOSAL PROGRAMS

Three disposal recommendations were submitted to GSA (amosite asbestos, molybdenum and nickel). As the period ended, BDC commodity specialists were contacting producers, processors, and consumers of surplus stockpile materials, and preparing comments in connection with the review of disposal programs for 55 commodities proposed by GSA for FY 1972.

### PURCHASE SPECIFICATIONS AND SPECIAL INSTRUCTIONS

By periodically revising the purchase specifications for stockpile materials, BDC helps assure that the Government's standard of quality for stockpile materials is consistent with requirements of modern industry. When a material is found to fall below current industrial standards, upgrading or rotation may be authorized. During January-June 1971, 12 revised purchase specifications were issued by BDC after approval by OEP.

Special Instructions are an administrative device by which GSA is provided with directions and guidance on crediting, record keeping, and rotation procedures. Four revised Special Instructions were issued by BDC after approval by OEP.

## **STORAGE INSTRUCTIONS**

Storage Instructions are documents which set forth the proper storage, maintenance, and handling procedures for stockpile materials in

GSA depots and warehouses. Fourteen Storage Instructions developed by GSA were reviewed by BDC. Most of the reviews involved consultation with industry.

## **ACTIVITIES OF THE DEPARTMENT OF STATE RELATING TO STOCKPILING OF STRATEGIC AND CRITICAL MATERIALS**

The Department of State provides guidance regarding the effects of stockpiling program activities on United States foreign relations and deals with problems in this area which may arise out of these activities.

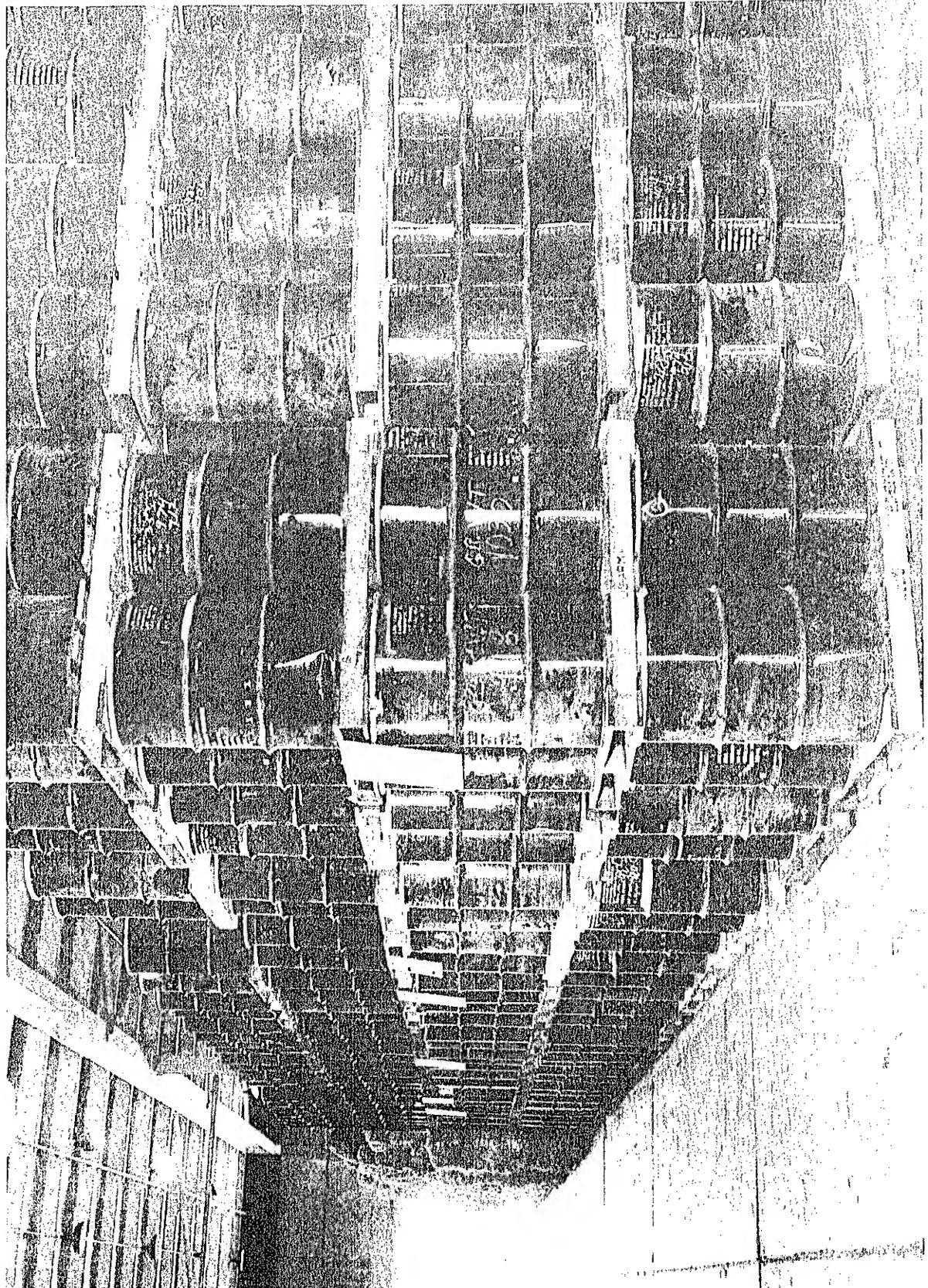
The Department participates with other agencies in the periodic review of the supply and demand situation for each of the stockpiled materials and in the development of related stockpile objectives. It also provides estimates of political and economic reliability of foreign sources of supply in time of national emergency.

In regard to the disposal of surplus materials from the stockpile, the Department shares in the development of disposal plans and conducts appropriate consultations with interested foreign governments about each plan. Based on these consultations, an evaluation is made of the political and economic effects of disposals on friendly foreign countries and on the foreign relations of the United States. Recommendations are then

made for the adoption or modification, as necessary, of the proposed disposal plans.

During January-June 1971, the Department conducted numerous consultations with foreign governments concerning proposed disposal plans, modification of existing programs, and continuation of on-going programs. In addition, it responded to representations made by foreign governments concerning the effects of disposal programs on their economies and foreign trade.

The Department also responded to inquiries from international organizations concerning stockpile policies and disposal programs. These organizations included the International Rubber Study Group, the International Lead and Zinc Study Group, the International Tin Council, United Nations Conference on Trade and Development's Committees on Commodities and Tungsten, the Ad Hoc Group on Trade of the Inter-American Economic and Social Commission, and the International Monetary Fund.



Low carbon ferrochromium which is used, primarily, in making stainless steels.

## **ACTIVITIES OF THE DEPARTMENT OF AGRICULTURE RELATING TO THE STOCKPILING OF STRATEGIC AND CRITICAL MATERIALS**

### **EXPANSION OF DOMESTIC SOURCES OF SUPPLY**

The Department of Agriculture maintains a viable seed stock of the following strategic plant materials: *Atropa belladonna*, *Digitalis lanata*, *Digitalis purpurea*, and *Papaver somniferum*.

These stocks are considered sufficient to meet minimum national production needs in event of an emergency. Stocks will be rejuvenated when they reach a critical stage of low viability.

### **BARTER ACTIVITIES**

No barter contracts for strategic materials

were signed during January-June 1971. However, during this period, diamond dies valued at \$20,000 were delivered, completing material deliveries under existing contracts. Strategic materials delivered to the Commodity Credit Corporation under barter contracts since 1950 reached a cumulative total of \$1.6 billion. Of this total, \$223.3 million in strategic materials have been transferred to the National Stockpile and about \$1.4 billion to the Supplemental Stockpile, through June 30, 1971. No further barter acquisition of strategic materials is anticipated at this time.

## **ACTIVITIES OF THE DEPARTMENT OF THE INTERIOR RELATING TO STOCKPILING OF STRATEGIC AND CRITICAL MATERIALS**

The Department of the Interior is responsible for the management, conservation, and development of the Nation's natural resources to meet the requirements of national security and an expanding economy. The Department, through its Office of Minerals and Solid Fuels, provides advice and assistance to the Office of Emergency Preparedness in formulating and carrying out programs for the stockpiling of strategic and critical materials and for the disposal of surplus commodities from the stockpile. The Office of Minerals and Solid Fuels conducts supply-requirements studies when market conditions or other circumstances indicate problem areas in which materials are likely to be in short supply and

recommends appropriate action to overcome deficiencies.

The Bureau of Mines and Geological Survey compile information on supply and demand for use in stockpile planning. The Department also administers programs to encourage the exploration, development, and mining of minerals and metals for emergency purposes.

### **MINERALS RESEARCH AND RESOURCE DEVELOPMENT ACTIVITIES**

The Bureau of Mines conducts inquiries and investigations concerning mining and the preparation, treatment, and utilization of

mineral substances. Active programs range from evaluation of supply and demand for minerals to creative methodology for metals recovery at acceptable social and environmental costs.

Domestic resources for primary copper and lead and secondary copper and zinc were being evaluated comprehensively to ascertain systems of recovery, resource and processing cost procedures, and price influences of scrap and primary metals on production of secondary copper and zinc.

Progress on development of processes to recapture and recycle critical metals from a wide variety of waste and scrap material, municipal refuse, industrial electroplating wastes, and mill and plant tailings continued.

A process of upgrading domestic ilmenite concentrates to a high purity rutile product was under development. In the process, ilmenite is reacted with carbon in an electric furnace yielding a pig iron byproduct and an enriched slag containing the bulk of the titanium. The slag is then oxidized causing formation of fine rutile crystals which can be readily separated from glass-like matrix. The process was being refined to improve recovery of the titanium from domestic ilmenite.

#### RARE EARTHS IN LEMHI PASS DISTRICT, IDAHO

The total rare earth content of thorium

#### BUREAU OF MINES

##### Reports of Investigations

- 7426      Kyanite Resources in the Northwestern United States (in two sections). 1. An Investigation of Selected Kyanite-Group Mineral Deposits. 2. A Market Study for Western Kyanite Ores.

- 7479 Properties of Cast Columbia Carbide-Carbon Alloys.
- 7481 Continuous Heavy Liquid Concentration of Kyanite.
- 7484 Electrolytic Preparation of Vanadium from V<sub>2</sub>C-Type Carbide.
- 7485 Tungsten and Dispersion-Strengthened Tungsten Made by Freeze Drying.
- 7488 Recovery of Mica from Silt Deposits in the Nolichucky Reservoir, Tennessee.
- 7498 Distribution of Sulfide and Oxide Copper in Copper Mill Tailings.

**Information Circulars**

- 8500 Availability of Tungsten at Various Prices from Resources in the United States.
- 8476 The Rare-Earth Elements, Yttrium, and Thorium. A Materials Survey.
- 8505 Materials Substitution Study. General Methodology and Review of U. S. Zinc Die-Casting Markets.

**Technical Progress Reports**

- 31 Recovery of the Nonferrous Metals from Auto Shredder Rejects by Air Classification.
- 33 Economics of Recycling Metals and Minerals from Urban Refuse.

**Bulletin**

- 650 Mineral Facts and Problems, 1970 Edition.

**GEOLOGICAL SURVEY**

**Professional Papers**

- 632 Mineral Resources of Glacier Bay National Monument, Alaska, by E. M. MacKevett, Jr., David A. Brew, C. C. Hawley, Lyman C. Huff, and James G. Smith (copper, molybdenum, nickel, titanium, and others).
- 694 Sulfide Minerals in the G and H Chromitite Zones of the Stillwater Complex, Montana, by Norman J. Page (platinum group minerals, copper, nickel).

- 700-A Geological Survey Research 1970, Chapter A. Short papers on mineral resources and related subjects.
- 700-D Geological Survey Research 1970, Chapter D. Short papers on economic geology, analytical methods and related subjects.
- Bulletins**
- 1312-P Geochemical Reconnaissance of the Cortez-Buckhorn Area, Southern Cortez Mountains, Nevada, by John D. Wells and James E. Elliott (gold, silver, mercury, antimony, copper, molybdenum).
- 1323 Stratigraphy and General Geology of the McCarthy C-5 Quadrangle, Alaska, by E. M. MacKevett, Jr. (copper).
- 1333 Geology of the McCarthy B-4 Quadrangle, Alaska, by E. M. MacKevett, Jr. (copper, gold, silver, antimony, molybdenum).
- Maps**
- I-608 Maps showing distribution of selected accessory minerals in the Montezuma stock, Summit County, Colo., by G. J. Neuerburg (copper, molybdenum, manganese).
- NR-48 Reported occurrences of selected minerals in the central third of California, compiled by M. B. Smith, V. L. Engler, D. I. Lee, K. J. Horn, and R. G. Wayland (includes most metals and nonmetals).

**EXPENDITURES OF STOCKPILE FUNDS, BY TYPE**  
(for the National Stockpile)

Cumulative and for Second Half Fiscal Year 1971

Type of Expenditures	Cumulative Through December 31, 1970	Six Months Ended June 30, 1971	Cumulative Through June 30, 1971
<b>Expenditures</b>			
Gross Total	\$6,527,586,553	\$8,096,228	\$6,535,682,781
Less: Receipts from Rotation Sales and Reimbursements	546,083,927	119,444	546,203,371
<b>Net Total</b>	<b>5,981,502,626</b>	<b>7,976,784</b>	<b>5,989,479,410</b>
Materials Acquisition Costs, Total	5,439,272,532	125,970	5,439,398,502
Stockpile Maintenance Costs, Total	454,129,119	4,444,507	458,573,626
Facility Construction	43,772,457		43,772,457
Storage and Handling Costs	307,590,794	4,444,507	312,035,301
Net Rotation Costs	102,765,868		102,765,868
Administrative Costs	73,822,660	2,503,099	76,325,759
Operations, Machine Tool Program	14,278,315	903,208	15,181,523

Cumulative figures are the total of expenditures under PL 117, 76th Congress and PL 520, 79th Congress. Expenditures under PL 117 totaled \$70,000,000 of which \$55,625,237 was for materials acquisitions costs and \$14,374,763 was for other costs. Final expenditures under PL 117 were made in FY 1951.

Source: General Services Administration

**TOTAL OBLIGATIONS AND EXPENDITURES OF STOCKPILING FUNDS**

Under PL 117 and PL 520 for the National Stockpile  
Cumulative and by Fiscal Period through June 30, 1971

Fiscal Period	OBLIGATIONS INCURRED <sup>1</sup>		EXPENDITURES <sup>2</sup>	
	Net Change by Fiscal Period	Cumulative as of End of Period	By Fiscal Period	Cumulative as of End of Period
Prior to Fiscal Year 1948	\$ 123,871,685	\$ 123,871,685	\$ 66,330,731	\$ 66,330,731
Fiscal Year 1948	252,901,411	376,773,096	82,907,575	149,238,306
Fiscal Year 1949	459,766,881	836,539,977	304,486,177	453,724,483
Fiscal Year 1950	680,427,821	1,516,967,798	440,834,970	894,559,453
Fiscal Year 1951	2,075,317,099	3,592,284,897	655,537,199	1,550,096,652
Fiscal Year 1952	948,117,547	4,540,402,444	844,683,459	2,394,780,111
Fiscal Year 1953	252,375,163	4,792,777,607	906,158,850	3,300,938,961
Fiscal Year 1954	116,586,681	4,909,364,288	644,760,321	3,945,699,282
Fiscal Year 1955	321,799,833	5,231,164,121	801,310,094	4,747,009,376
Fiscal Year 1956 <sup>3</sup>	251,692,667	5,482,856,788	382,011,786 <sup>3</sup>	5,129,021,162 <sup>3</sup>
Fiscal Year 1957	190,000,109	5,672,856,897	354,576,558	5,483,597,720
Fiscal Year 1958	54,473,250	5,727,330,147	173,753,997	5,657,351,717
Fiscal Year 1959	38,710,879	5,766,041,026	65,260,098	5,722,611,815
Fiscal Year 1960	19,859,290	5,785,900,316	49,227,142	5,771,838,957
Fiscal Year 1961	29,082,919	5,814,983,235	33,325,431	5,805,164,388
Fiscal Year 1962	31,179,407	5,846,162,642	33,695,431	5,838,859,819
Fiscal Year 1963	17,414,900	5,863,577,542	22,104,176	5,860,963,995
Fiscal Year 1964	15,489,597	5,879,067,139	16,091,067	5,877,055,062
Fiscal Year 1965	16,288,732	5,895,355,871	16,561,275	5,893,616,337
Fiscal Year 1966	16,296,070	5,911,651,941	16,468,100	5,910,084,437
Fiscal Year 1967	18,197,410	5,929,849,351	17,981,675	5,928,066,112
Fiscal Year 1968	16,008,237	5,945,857,588	15,902,213	5,943,968,325
Fiscal Year 1969	15,451,611	5,961,309,199	15,914,729	5,959,883,054
Fiscal Year 1970	14,795,005	5,976,104,204	13,799,261	5,973,682,315
Fiscal Year 1971	17,529,398	5,993,633,602	15,797,095	5,989,479,410

<sup>1</sup>Figures are the sum of obligations incurred under PL 520, 79th Congress and PL 117, 76th Congress. Final obligations under PL 117, 76th Congress were incurred in Fiscal Year 1949.

<sup>2</sup>Figures are the sum of expenditures under PL 520, 79th Congress and PL 117, 76th Congress. Final expenditures under PL 117, 76th Congress were made in Fiscal Year 1951.

<sup>3</sup>1956 and subsequent fiscal periods and cumulative expenditures are reported on an accrual basis.

Source: General Services Administration